LPR 220-03-00.0 Issue Date February 19, 1997

Performance Requirement: Facility Projects

Title: Engineering Design Mandatory Document

Standard Statement:

Engineering and design translate project requirements into executable plans and specifications.

Performance Criteria:

- 1. A systematic process is used to execute design.
- A technical baseline is developed to establish scope, cost, and schedule.
- 3. Lessons learned from similar projects are reviewed and incorporated as required.
- Health, safety, environmental, and security issues are identified and incorporated in the design.
 NOTE: Decontamination and decommissioning (D&D) environmental issues include special cleanup criteria.
- 5. Special requirements, regulations, specifications, criteria, codes, and standards are identified.
- Maintenance and D&D requirements are identified and incorporated into the design.
- 7. Engineering is performed by qualified personnel.
- 8. Technical requirements are developed to the extent necessary to allow procurement of engineering services as required.
- Designs are evaluated against functional requirements in support of established mission needs.
- 10. Alternative solutions are developed and evaluated.
- Engineering methodologies, such as value engineering, life cycle costing, energy conservation studies, cost benefit analysis, are selected and developed based on economic and mission need factors.
- 12. Approvals for environmental and other regulatory requirements are obtained prior to construction or D&D execution.
- 13. The degree of rigor and quality assurance for engineering is established based on operational need, health, safety, environmental, and security requirements, importance, and complexity.
- 14. Test and inspection plans are developed to satisfy design requirements for construction.
- 15. Construction and D&D management requirements (such as change control, field engineering, Quality Assurance Plan, Records Management Plan) are identified.
- 16. Contract documents are developed to the extent necessary to allow solicitation and procurement of the project.

Contractual Work Smart Standards:

20 NMAC 2.72, Construction Permits

20 NMAC 5.1-5.14, New Mexico Hazardous Waste Act and New Mexico Groundwater Protection Act 29 CFR 1910, Occupational Safety and Health Standards

29 CFR 1926, Safety and Health Regulations for Construction

40 CFR 280, Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tank (UST)

49 CFR 30-399, Department of Transportation, Motor Carrier Safety Regulations

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Americans with Disabilities Act (ADA)

DOE M 440.1-1, Revision 8, 3/96, Explosives Safety Manual

DOE O 5700.6C, Quality Assurance

DOE OSS Range Design Criteria Guide

DOE-STD-1020-94, Natural Phenomena Hazard Design and Evaluation Criteria for DOE Facilities

INCZ (ASHRAE) 61.1989, Ventilation for Acceptable Indoor Air Quality

National Fire Protection Association (NFPA) Standards, including 101, Life Safety Code

Uniform Building Code (UBC)